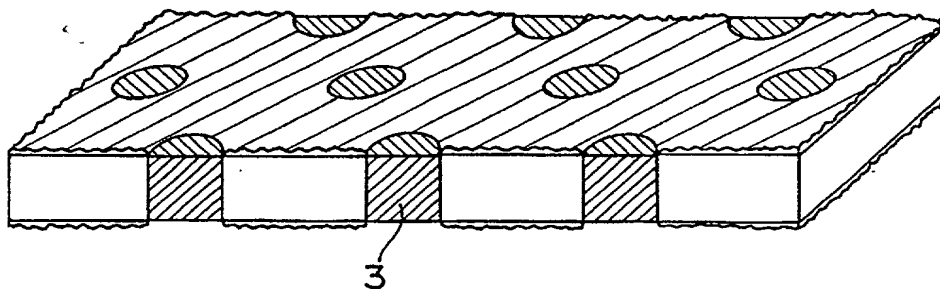


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(21) 国際出願番号 PCT/JP00/01370 (22) 国際出願日 2000年3月7日(07.03.00) (30) 優先権データ 特願平11/60817 1999年3月8日(08.03.99) JP (71) 出願人 (米国を除くすべての指定国について) 株式会社 先端科学技術インキュベーションセンター (CENTER FOR ADVANCED SCIENCE AND TECHNOLOGY INCUBATION, LTD.)[JP/JP] 〒100-0005 東京都千代田区丸の内一丁目5番1号 新丸の内ビルディング Tokyo, (JP) (72) 発明者 ; および (75) 発明者 / 出願人 (米国についてののみ) 山口 猛央(YAMAGUCHI, Takeo)[JP/JP] 〒216-0005 神奈川県川崎市宮前区土橋3-15-2 Kanagawa, (JP) 中尾 真一(NAKAO, Shinichi)[JP/JP] 〒175-0093 東京都板橋区赤塚新町3-32-5-303 Tokyo, (JP) (74) 代理人 井波 実(INAMI, Minoru) 〒160-0022 東京都新宿区新宿4丁目3番17号 HK新宿ビル7階 太陽国際特許事務所 Tokyo, (JP)	(81) 指定国 AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, 欧州特許 (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI 特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG), ARIPO特許 (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), ユーラシア特許 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM) 添付公開書類 国際調査報告書	

(54) Title: ELECTROLYTIC MEMBRANE FOR FUEL CELL AND ITS MANUFACTURING METHOD, AND FUEL CELL AND ITS MANUFACTURING METHOD

(54) 発明の名称 燃料電池用電解質膜及びその製造方法、並びに燃料電池及びその製造方法



(57) Abstract

A conventional direct methanol solid polymer fuel cell comprises a solid polymer electrolyte as an electrolyte. This type of cell involves some problems; methanol permeates the membrane; the electromotive force lowers because of direct oxidation; and the membrane melts at about 130 °C when the temperature is increased to enhance the catalyst activity. According to the invention, an electrolytic membrane made of a porous base (1) that does not swell substantially with methanol and water and has pores (2) filled with a polymer (3) having a proton conductivity is produced and used to suppress the permeation of methanol as much as possible, providing an electrolytic membrane for fuel cells endurable in a high-temperature environment, a fuel cell comprising such a membrane, a method of manufacturing such a fuel cell, and a method of manufacturing an electrolytic membrane comprising irradiating a porous base having swell-resistance against organic solvent and water with energy and contacting the base with a monomer to cause polymerization.

ABSTRACT OF THE INVENTION

A conventional direct methanol solid polymer fuel cell comprises a solid polymer electrolyte as an electrolyte. This type of cell involves some problems; methanol permeates the membrane; the electromotive force lowers because of direct oxidation; and the membrane melts at about 130 °C when the temperature is increased to enhance the catalyst activity. According to the invention, an electrolyte membrane made of a porous substrate (1) that does not swell substantially with methanol and water and has pores (2) filled with a polymer (3) having proton conductivity is produced and used to suppress the permeation of methanol as much as possible, providing an electrolyte membrane for fuel cells endurable in a high-temperature environment, a fuel cell comprising such a membrane, a method of manufacturing such a fuel cell, and a method of manufacturing an electrolyte membrane comprising irradiation a porous substrate having swell-resistance against organic solvent and water with energy and contacting the substrate with a monomer to cause polymerization.